

# **UPDATING USE-VALUES OF MISSOURI AGRICULTURAL LAND**

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This report contains updated use-values for agricultural land in Missouri. Data pertaining to calendar year 2004 (and more recent if possible) were obtained and used to compute the updated use-values. This included data on year 2005 cropland and pasture rental rates for Missouri, and historical (2004 and previous) long-term farm real estate loan interest rates for the Kansas City Federal Reserve District (for computing the capitalization rate). Rental rate changes are applied to the previous years net crop (or pasture) revenue figures, to represent movements in returns to farmland. These income figures are then capitalized into a use-value using a five-year average interest rate.

For the year 2005, U.S.D.A. Economic Research Service data show average Missouri cropland rental rates increasing to \$79.00 per acre, an increase of \$3.00 per acre above the 2004 amount. Pasture rental rates increased by \$1.00 per acre over the year 2004 level to stand at \$27.00 per acre. The procedure used to compute average net crop or pasture returns smoothes out some of the year-to-year fluctuations by taking long-term averages. Net return averages used to compute use-values rose by 5.32% for cropland (soil grades 1-4), while increasing by 6.09% for pastureland (soil grades 5-8) between 2004 and 2005. Interest rates bottomed out during early 2004 and rose slightly during the last three quarters in the year. The five-year moving average figure for interest rates (now for the years 2000 through 2004) decreased by .41 percentage points, falling from 8.245 to 7.835 percent due to lower interest rates in 2004 as opposed to 1999. The combination of higher long-term average net rents and a lower average capitalization rate resulted in use-value increases of 10.83% for cropland and 11.64% for pastureland.

While data for the market value of farmland and buildings do not correspond directly to use-value changes, we can look back at these figures as one source of comparison. U.S.D.A. figures put Jan. 1, 2005 average Missouri farm real estate (land and building) values at \$1,740 per acre, up from \$1,580 in 2004. This amounts to a percentage change between 2004 and 2005 of 10.1 percent. In 2001 the U.S.D.A. also began reporting crop and pasture land values. Missouri non-irrigated cropland was valued at \$1,850 per acre on Jan. 1, 2005, up from \$1,650 one year earlier, an increase of 12.1 percent. Pastureland values also increased, from \$1,130 up to \$1,260 per acre, an increase of 11.5 percent. Use-value changes for the same period range from about 10.8 percent for cropland to 11.6 percent for pastureland.

Calculated use-value changes do not always follow market value changes due to several factors. Use-values are calculated using an historical average of returns to land (i.e. rents) and interest rates. This process tends to slow or smooth the response of use-values to annual changes in these factors. This minimizes the effects of any one-year, and makes tax (and revenue) planning easier. But this can also lead to movements in use-values that do not appear consistent with the annual fluctuations in market values for land. Market values tend to react faster to changes in returns to land and interest rates. Market values continue to rise, in part due to non-agricultural use demand. Use-values are not intended to measure sales or actual market prices, but only to represent the agricultural productivity value of the land. Use-values change as net returns to land change or as interest (i.e. discount) rates change. Market values reflect many factors above and beyond the capitalized value of agricultural returns including influences of non-agricultural uses, building and other improvement values, returns on competing investments, etc.

U.S.D.A. figures show 2004 as having been a much improved net farm income year, more than double that of a year earlier. While crop prices were lower for corn and soybeans, record yields pushed value of production for both crops above 2003 levels. Wheat prices on average rose in 2004 from the previous year, but lower yields resulted in a slightly lower value of total production. Hay prices fell but yields rose in 2004, generating a small increase in total value of output. Beef cattle and calve prices, as well as hog prices continued on the increase in 2004, each posting sizeable increases. Dairy producers enjoyed significantly higher milk prices in 2004 as compared to 2003. With these generally higher crop and livestock revenues, cash rental rates for cropland have continued to move up. Government support, competition for rented ground, and the eternal optimism of farmers continues to prop up rental values as well. Pasture rental rates responded to the gains in livestock (especially cattle) prices and continued to climb. Direct government payments to farmers decreased in 2004, but continue to be an important source of revenue for U.S. farmers.

Agricultural use-values represent the value of land when used to produce future income via farm production. Historical returns to land (an estimate of future earning capacity) are capitalized into a value using interest rates as a discount rate. Because use-values represent the value of land to produce future income, changes in use-values do not always correspond directly to current income levels of producers. As such, the ability of farmers to pay for land (or taxes) will not always move in the same direction as use-values. This report presents only the calculation of updated use-values, and does not deal with the current financial situation of producers or their ability to pay farm expenses. The severe drought in 2005 will cause financial hardship for many farmers. Figures for 2005 yields and income are not incorporated into the calculation of the current use-values. The current financial situation of agricultural producers needs to be an important consideration in the timing of taxation changes. But there is always a lag between the time of tax changes and implementation, as well as between use-value changes and current farm financial conditions.

The following tables present the computations used to update Missouri agricultural land use-values, changes in use-values from the previous period, and an historical look at use-values for the eight different land grade classifications.

## **2005 Calculated Use-Values.**

2005 crop rent average (6 most recent years take out high and low) = 69.25

2004 crop rent average (6 most recent years take out high and low) = 65.75

Percentage crop rent increase 2004 to 2005 = 5.32 %

(Current USDA Ave. MO cropland rent stands at \$79 per acre)

2005 pasture rent average (5 most recent years) = 24.40

2004 pasture rent average (5 most recent years) = 23.00

Percentage pasture rent increase 2004 to 2005 = 6.09 %

(Current USDA Ave. MO pastureland rent stands at \$27 per acre)

2003 Net Revenue	Times 1 plus % change	2004 Calculated Net Revenue	5 yr. Moving Ave. Capitaliz. Rate	2004 Use-Values
\$118.5461	1.0532319	\$124.8565	0.07835	<b>\$1593.57</b> Soil Grade 1
\$96.0851	1.0532319	\$101.1999	0.07835	<b>\$1291.64</b> Soil Grade 2
\$70.6343	1.0532319	\$74.39431	0.07835	<b>\$949.51</b> Soil Grade 3
\$40.6864	1.0532319	\$42.85217	0.07835	<b>\$546.93</b> Soil Grade 4
\$24.0588	1.0608695	\$25.52327	0.07835	<b>\$325.76</b> Soil Grade 5
\$18.1918	1.0608695	\$19.2991	0.07835	<b>\$246.32</b> Soil Grade 6
\$ 8.9253	1.0608695	\$9.468535	0.07835	<b>\$120.85</b> Soil Grade 7
N/A	1.0608695	N/A	0.07835	<b>N/A</b> Soil Grade 8

### Use-Values and percentage changes.

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